

## PATENT SPECIFICATION



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## PROVISIONAL SPECIFICATION.

## Improvements in or relating to Heating Apparatus for Buildings.

I, RUPERT JAMES ROGERS, British Subject, of 479, Gillott Road, Edgbaston, Birmingham, do hereby declare the nature of this invention to be as follows:—

5 This invention relates to improvements in heating apparatus for dwelling-houses, halls, offices and other buildings, and refers particularly to apparatus for supplying heat in radiant form.

10 The object of my invention is to provide an improved form of heating apparatus which gives a large heat radiation at a comparatively low temperature with a minimum consumption of gas or other heating medium, and which can be readily fitted upon a wall in any convenient position so that it takes up no floor space and is therefore particularly adapted for warming entrance halls, 15 corridors, passages and similar places. A further object is to provide a gas or oil heated apparatus which automatically collects and/or evaporates any condensed products which may be formed when the 20 apparatus is first lighted after being cold. One of the chief advantages of a heating apparatus mounted above the floor and giving out radiant heat at a comparatively low temperature is that of a feeling 25 of warmth is imparted to persons in the vicinity without the necessity for raising the surrounding atmosphere to any given temperature, so that the apparatus is extremely effective for the amount of 30 fuel consumed.

35 My invention comprises a hollow casing of sheet metal, asbestos-cement-composition, or other suitable material, within the lower end of which is arranged a 40 burner or burners for gas, oil, petrol, gas or other available fuel, air inlets being provided near the bottom of the casing and ventilation openings near the top.

45 The back of the casing, which is adapted to be secured against a wall, is provided on its inner face with a thick layer of heat-insulating material which is preferably of such a nature that it will absorb any condensed water formed when the burners are first lighted. To trap any water which is not absorbed by the insulation, a trough is preferably provided at the bottom of the casing below the

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burners. This trough is conveniently enamelled to prevent rusting or corrosion 55 and is provided with a tap or drain plug to allow the condensed products to be drawn off.

Where several burners are employed a separate tap is preferably provided for 60 each so that the heat emission can be regulated as desired, and for lighting the burners, a hinged or sliding door, which may have a glass panel in it, is provided in the front of the casing. 65

Where gas is the heating medium employed, the burners may be of the bunsen type, or of the ordinary lighting type giving a yellow flame, and the gas consumption required is so low that no harm 70 is done by allowing the products of combustion to escape directly from the casing. If, however, a flue is available within reasonable distance of the apparatus, an outlet pipe may be taken from the casing 75 at any convenient point to the flue.

In addition to the insulation on the back of the casing, a layer of insulating material is preferably provided on the inner surface of the front extending 80 upwardly for a short distance from the burners.

Baffles of any desired form may be arranged within the casing to direct the hot products of combustion from the 85 burners over the interior surface of the casing. In order to cause these products to travel over a long path, a vertical partition of heat insulating material, or of metal covered with such material, may 90 divide the casing transversely to within a short distance of the top so that the hot products travel up one side of the partition and down the other to an outlet or outlets arranged at any desired convenient point. 95

The casing may be of any desired dimensions and outline, but is preferably of shallow rectangular box form so that it has the general appearance of a panel, 100 and the back is provided with lugs or other means for securing it to a wall. The casing can be made of any desired dimensions to suit different conditions, and may be ornamented or finished to suit 105 any desired style of furnishing.

For the Applicant,  
BARKER, BRETELL & DUNCAN,  
Chartered Patent Agents,  
75 and 77, Colmore Row, Birmingham,

Dated this 4th day of August, 1928.

COMPLETE SPECIFICATION.

Improvements in or relating to Heating Apparatus for Buildings.

I, RUPERT JAMES ROGERS, British Subject, of 479, Gillott Road, Edgbaston, Birmingham, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in heating apparatus for dwelling-houses, halls, offices and other buildings, and refers particularly to apparatus for supplying heat in radiant form.

The object of my invention is to provide an improved form of heating apparatus which gives a large heat radiation at a comparatively low temperature with a minimum of gas or other heating medium, and which can be readily fitted upon a wall in any convenient position so that it takes up no floor space and is therefore particularly adapted for warming entrance halls, corridors, passages and similar places. A further object is to provide a gas or oil heated apparatus which automatically collects and/or evaporates any condensed products which may be formed when the apparatus is first lighted after being cold.

One of the chief advantages of a heating apparatus mounted above the floor and giving out radiant heat at a comparatively low temperature is that a feeling of warmth is imparted to persons in the vicinity without the necessity for raising the surrounding atmosphere to any given temperature, so that the apparatus is extremely effective for the amount of fuel consumed.

My invention comprises a hollow casing 40 of sheet metal, cast-iron, asbestos-cement composition, or other suitable material, within the lower end of which is arranged a burner or burners for gas, oil, petrol gas or other available fuel, air inlets being provided near the bottom of the casing and ventilation openings near the top, or at any other convenient parts of the casing.

The back of the casing, which is adapted to be secured against a wall above and clear of the floor, is provided on its inner face with a thick layer of heat-insulating material which is preferably of such a nature that it will absorb any condensed water formed when the burners

are first lighted.

Where several burners are employed a separate tap is preferably provided for each so that the heat emission can be regulated as desired, and for lighting the burners, a hinged or sliding door, which may have a glass panel in it, is provided in the front of the casing.

In addition to the insulation on the back of the casing, a layer of insulating material is preferably provided on the inner surface of the front extending upwardly for a short distance from the burners.

Baffles of any desired form may be arranged within the casing to direct the hot products of combustion from the burners over the interior surface of the casing. In order to cause these products to travel over a long path, a vertical partition of heat-insulating material, or of metal covered if required with such material, may divide the casing transversely to within a short distance of the top so that the hot products travel up one side of the partition and down the other to an outlet or outlets at any desired convenient point.

It has been proposed to suspend a gas fire against a wall some distance above a floor with a reflector to direct the heat downwardly, but in that case heat is given out from radiants maintained at a high temperature as in the ordinary gas-fire, and such an arrangement is quite distinct from my invention which is concerned with the radiation of heat from a large surface maintained at a comparatively low temperature.

Some practical forms of heating apparatus in accordance with my invention are illustrated in the accompanying drawings in which:—

Fig. 1 is a perspective view of a small heater mounted on the wall of a room or hall.

Fig. 2 is a front elevation and Fig. 3 a vertical section of the heater.

Fig. 4 is a front elevation and Fig. 5 a vertical section of a slightly modified form of heater.

Fig. 6 is a front elevation and Fig. 7 a vertical section of a heavier type of heater.

The heater illustrated in Figs. 1, 2, and 4

3 is in the form of a shallow rectangular casing *a* built up of sheet metal and having an ornamental front panel.

Near the bottom of the casing is a transverse gas tube *b* carrying one or more burners *c* which may be of the bunsen type or of the ordinary lighting type. Access to the burners for lighting purposes is provided by a hinged door or flap *d* which is perforated to admit air for combustion. An outlet for the products of combustion is provided by a row of openings *e* near the upper end of the casing.

15 Secured on the inner face of the back of the casing is a thick layer of heat-insulating material *f* which protects the wall against which the casing is secured and also serves to absorb any condensed water formed when the burners are first lighted. A similar layer *g* is preferably provided on the front of the casing for a short distance above the burners.

To trap any water which is not absorbed by the insulating material an enamelled or other trough *h* provided with a drain plug *j* may be arranged at the lower end of the casing as shown in Fig. 3, the water being guided into the trough by baffle strips *k* arranged at the bottom end of the insulating material.

The heater illustrated in Figures 4 and 5 is of substantially the same construction except that the trough *h* is omitted and a guarded hood outlet *l* for the products of combustion is provided at the upper end of the casing.

The heater illustrated in Figs. 6 and 7 is of somewhat heavier construction and 40 may conveniently be made in cast-iron, the back *m* with the sides and bottom being one casting and the front *n* with the top closure being another casting. Vertical baffles *p* project forwardly from the back near each side so that the products of combustion are caused to pass up the centre of the casing and down on the outer side of each baffle, as shown by the arrows, until they escape from the 45 casing through the perforated plates *q* provided in the front.

The outer surface of the casing may be finished in any desired manner but is preferably coated with a pigment paint 50 which is a good radiator of heat.

By providing a wire gauze cover for the air inlets and outlets of any of the heaters they are rendered particularly suitable for warming garages and other 55 places where a naked flame is inadvisable.

For example, in the heater illustrated in Figs. 6 and 7 a row of air inlet holes *r* protected by wire gauze *s* may be provided in the bottom of the casing, and 60 wire gauze coverings are provided on the

inner side of the perforated plates *q*. The door *t* which gives access to the burners is provided with means for locking it to make an airtight joint and one or more glass-covered sight-holes *u* for inspecting the burners may be provided in the door.

70 A heater arranged in this way is specially suited for warming a garage and has the great advantage over most other forms of heater that it takes up no floor space.

In all the forms of heater illustrated the products of combustion are allowed to escape directly from the casing into the atmosphere and this causes no harm as the amount of fuel consumed is extremely low, but it will be understood that where a flue is available within a reasonable distance an outlet pipe may be taken from the casing at any convenient point to the flue.

80 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. An improved heating apparatus for supplying heat in radiant form comprising a hollow casing adapted to be secured against a wall or the like to leave a clear floor space below it and having at or near its lower end one or more fuel burners for warming the casing, suitable inlets for air and outlets for products of combustion being provided at appropriate points.

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2. An improved heating apparatus for supplying heat in radiant form comprising a hollow metal casing adapted to be secured against a wall or the like to leave a clear floor space below it and having its rear surface lined with a layer of heat-insulating material, one or more fuel burners within the casing near its lower end for warming it, and inlet and outlet passages for air and products of combustion at suitable points in the casing.

3. An improved heating apparatus as claimed in Claim 1 or 2 in which baffles are provided within the casing to increase the length of the path followed by the hot products of combustion within the casing from the burners to the outlet or outlets.

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4. An improved heating apparatus as claimed in Claim 1 or 2 in which the rear wall of the casing is lined with heat-insulating material of such a nature as to be capable of absorbing condensed water formed within the casing when the burners are first lighted.

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5. An improved heating apparatus as claimed in Claim 1 or 2 in which a layer of heat-insulating material is secured

against a portion of the inner surface of the front wall of the casing above the burners.

6. An improved heating apparatus as claimed in Claim 1 or 2 in which a trough provided with draining means is arranged in the lower end of the casing to receive the condensed water generated from the burners.

10. 7. An improved heating apparatus as claimed in Claim 1 or 2 in which an open-  
ing provided with a hinged or sliding door is arranged near the lower end of the casing to give access to the burners.

8. The improved heating apparatus substantially as described and as illustrated in the accompanying drawings. 15

Dated this Eleventh day of April, 1929

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75 & 77, Colmore Row, Birmingham.

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*[This Drawing is a reproduction of the Original on a reduced scale.]*

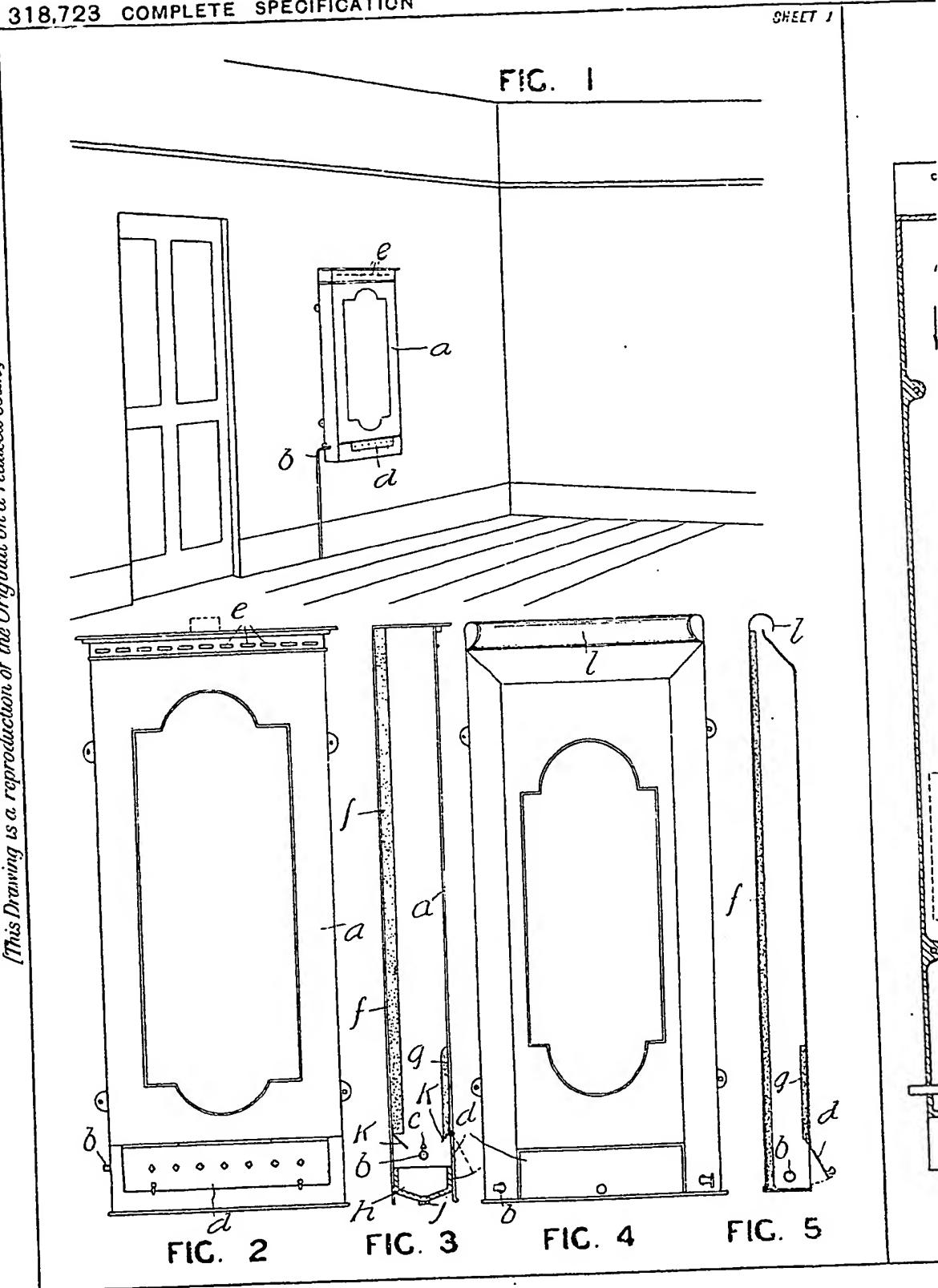


FIG. 6

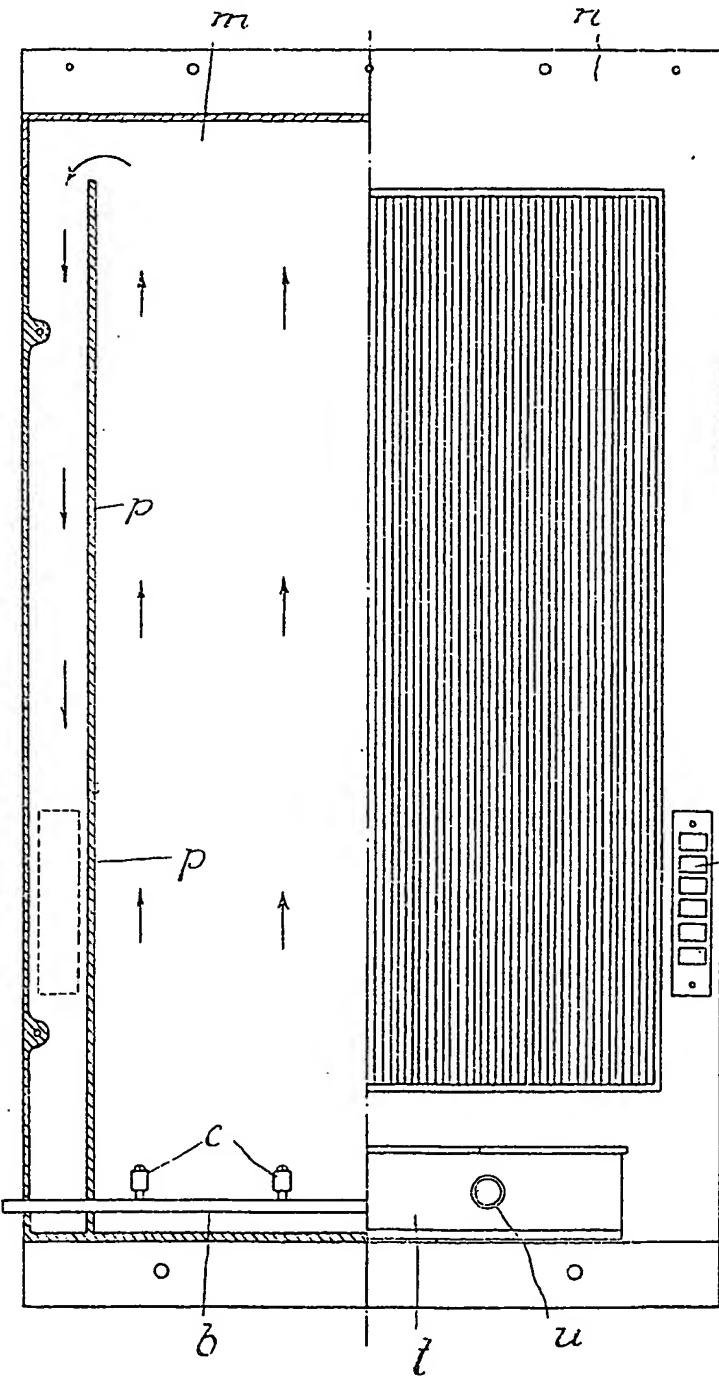


FIG. 7

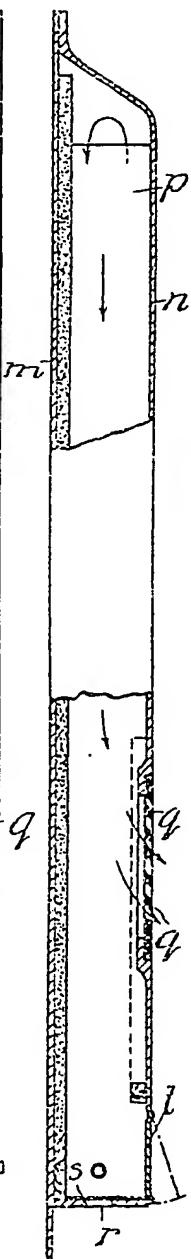


FIG. 5

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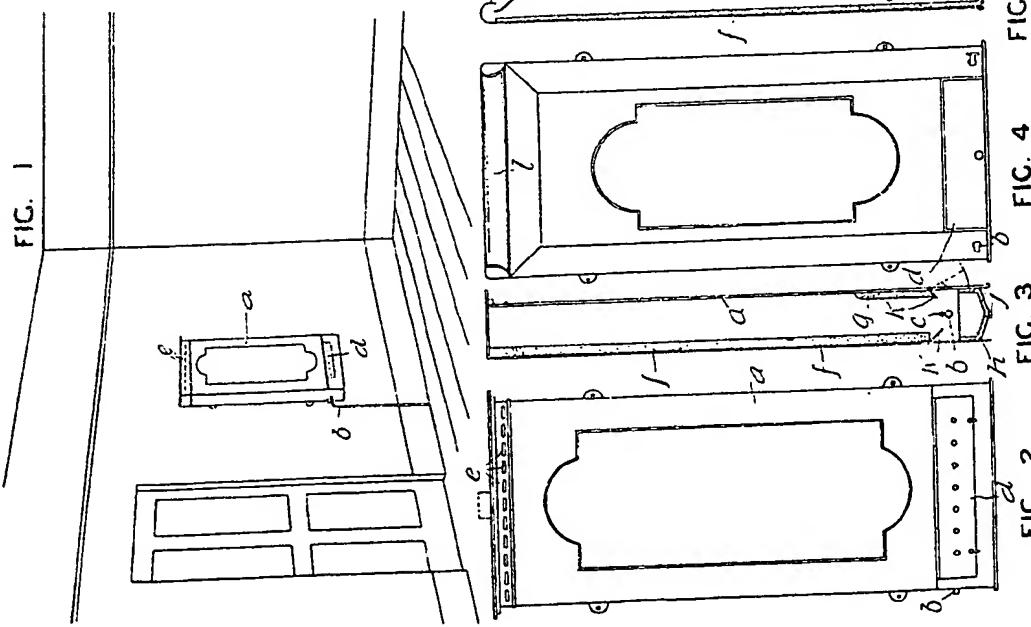


FIG. 1

FIG. 5

FIG. 4

FIG. 3

FIG. 2

FIG. 7

FIG. 6

FIG. 7

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